

ABSTRACT

A novel reagent system for use with automated and semi-automated hematology analyzers including an essentially isotonic blood diluting reagent, a blood cell lysing and hemoglobin conversion reagent, and a second lysing reagent for differentiating white blood cells into classes by size and functional characteristics. The diluent reagent enhances properties for counting and sizing blood specimens, while stabilizing cellular volume and cellular integrity for many hours. The blood cell lysing reagent removes red blood cells and enables subsequent enumeration of white blood cells and simultaneous determination of hemoglobin without use of the toxic cyanide anion. The third lysing reagent and a companion quenching differentiates blood cells into classes by size and functional characteristics, based on d.c. impedance volume, conductivity-opacity and light scatter measurements. The companion quenching reagent adjusts pH and conductivity of the final measurement solution to match the analyzer system requirements. Novel methods for use of the reagents with automated and semi-automated hematology analyzers are also provided.